

Abstract of the Disclosure

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A method of making permanent adjustments to the resonant cavity of a laser device in order to match its free spectral range to a specified frequency interval involves monitoring the optical output produced during laser operation or cavity illumination with diagnostic light, determining the free spectral range from the monitored output, and then permanently modifying the effective refractive index of an intracavity waveguide segment of the laser device according to the determined free spectral range obtained from the monitoring step until the desired match is achieved. The permanent index changes can be done in several ways, including illumination of the intracavity segment with an energetic beam (e.g. UV light) to induce a chemical alteration in the waveguide material, such as polymer cross-linking in the waveguide cladding. Evaporative deposition or ablative removal of intracavity waveguide material would also produce the desired permanent modifications.

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